FEASIBILITY STUDY

NC 226
From I-40 to US 221
McDowell County, R-2642

Prepared by
Planning and Environmental Branch
Division of Highways
N. C. Department of Transportation

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Date

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I. GENERAL DESCRIPTION

This report covers a preliminary study of the proposed upgrading of NC 226 near Marion, in McDowell County, to a multi-lane facility. The proposed project extends from Interstate 40 to US 221 and is approximately 1.2 miles in length (see Figure 1). It is included in the 1990-1996 Transportation Improvement Program for feasibility study and/or right-of-way protection. It is not currently funded for design, right-of-way acquisition, or construction.

II. PURPOSE OF PROJECT

Existing Route Characteristics

NC 226 serves the southeastern area of Marion and provides a major connector between Interstate 40 and the downtown Marion area. It will also provide a direct connection between I-40 and the US 221-NC 226 Bypass around Marion which is presently under construction. It is classified as a major thoroughfare on the Marion Thoroughfare Plan which was adopted in January 1985. NC 226 is classified as a Rural Major Collector in the North Carolina Functional Classification System.

NC 226 is basically a two-lane facility with a 22-foot pavement and 3-foot unpaved shoulders. The existing right-of-way is claimed 32 feet, symmetrical about the present centerline. The horizontal alignment is fair, with one 5- degree curve and two 6-degree curves. The vertical alignment is good along the studied section of road. All intersections along the studied route are at grade with the exception of the I-40 interchange and are all stop sign controlled with the exception of the signalized intersection at US 221. The speed limit is 45 mph throughout the length of the project.

At the southeastern end of the project, NC 226 continues as a two-lane roadway with a 22-foot pavement. But at the northwestern end of the project, NC 226 intersects US 221 directly opposite the Marion Bypass project (US 221 - NC 226) which is under construction. The cross section on the bypass is four-lane divided with a 16-foot raised median.

Development along the studied route is of moderate density and is a mixture of commercial, industrial, and residential.

There is one bridge over the project which carries parallel tracks belonging to Southern Railway and CSX Railroad. The horizontal clearance under the structure is 33.8 feet, and the vertical clearance is 13.1 feet. The bridge, which was built in 1937, has a timber floor supported by steel I-beams and reinforced concrete abutments.

There is also one culvert on the project. It is a quadruple 9' X 10' reinforced concrete box culvert carrying Youngs Fork Muddy Creek. This culvert was built in 1950 and has a sufficiency rating of 99.0 out of a possible 100.

Traffic Volumes, Capacity, and Accident Record

The current traffic volume on NC 226 is 10,200 vehicles per day (vpd). By the year 2010, this volume is projected to increase to approximately 18,400 vpd. With the current traffic volume, NC 226 is operating at Level of Service E during peak periods. This level of service is characterized by congestion and delays to motorists. Without improvements to the highway, the level of traffic service will deteriorate in the future as traffic volumes continue to grow. With the proposed improvements, NC 226 should operate at Level of Service C or better throughout the planning period.

During the period from December 1, 1986 through November 30, 1989, 55 accidents were reported on the subject portion of NC 226, resulting in an accident rate of 534.5 accidents per 100 million vehicle miles (acc/100mvm). This compares to a statewide average of 280.3 acc/100mvm for all two-lane, urban North Carolina routes over a similar period. The most common accident type was the rear-end collision, which accounted for over 50% of the accidents. The proposed improvements to NC 226 should reduce the potential for this type of accident.

Need for Project

The widening of NC 226 to a multi-lane section is needed to provide adequate capacity for existing and future traffic volumes. The project will improve access into Marion from I-40, and will provide a direct link between I-40 and the Marion Bypass, which is currently under construction. The project will also enhance safety along the road.

III. RECOMMENDATIONS AND COSTS

The widening of NC 226 to a multi-lane facility is immediately warranted. The recommended improvement is a five-lane curb and gutter cross section, 64 feet from face to face of curbs. The recommended alignment is a combination of widening the existing road and construction on new location. The existing road should be widened, generally symmetrical about the existing centerline, from I-40 to SR 1740 and from SR 1737 to US 221. Between SR 1740 and SR 1737, it is recommended NC 226 be constructed on new location along the alignment shown as Alternative 2 on Figure 2. A 100-foot right-of-way, plus construction easements as needed, are anticipated in the areas where the existing roadway is to be widened. In the relocated areas, it is anticipated the right-of-way width will vary from 120 feet to 240 feet to contain the fill needed for the railroad overpass.

The estimated costs of this project are as follows:

Construction	$ 3,450,000
Right-of-Way	1,670,000
TOTAL	$ 5,120,000

The construction cost includes engineering and contingencies and the right-of-way cost includes relocation, acquisition, and utility costs.

IV. ALTERNATIVES CONSIDERED

Two alternatives were considered for the replacement of the existing narrow railroad underpass (see Figure 2). Alternative 1 follows the existing alignment throughout the project length, replacing the railroad overpass at its present location. This alternative would require the construction of two railroad detours to carry the tracks during the construction period.

Alternative 2 provides a railroad overpass on new location. The alignment provided by this alternative is better than the existing alignment .

COMPARISON OF ALTERNATIVES

Alternative	Cost (Thousands of Dollars) Construction	Right-of-Way	Total	Relocation Res.	Bus.
Alt.1	4,400	1,870	6,270	3	7
Alt.2	3,450	1,670	5,120	2	6

Based on lower cost, fewer relocatees, and better horizontal alignment, Alternative 2 is recommended.

Southern Railway filed a request for abandonment of its tracks several years ago, and permission to abandon the tracks was granted. However, the tracks have not been abandoned, and Southern's future plans for the line are uncertain. If the tracks are abandoned before the project is built, it will reduce the cost of both alternatives.

Alternative 1 would have the larger cost reduction since both a temporary railroad detour structure and a permanent new structure could be eliminated, whereas Alternative 2 would only benefit by a shorter bridge length over the railroad tracks. If the tracks are removed, further estimates should be prepared to determine the alternative with the lower cost.

V. ENVIRONMENTAL EFFECTS

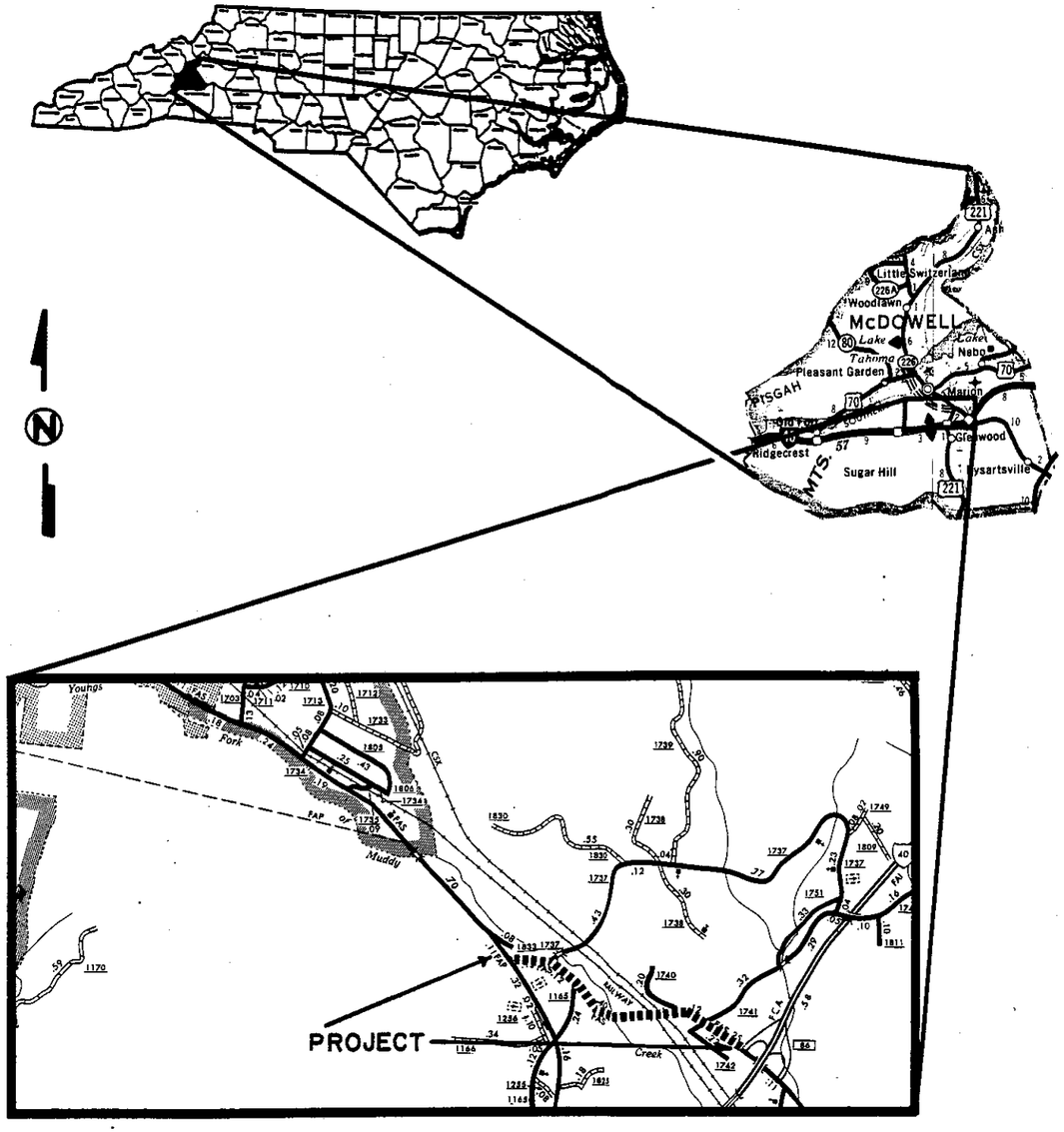
The widening of the subject road will require the relocation of an estimated 6 residences and 2 businesses. The project will also result in increased noise levels for development adjacent to the roadway. Minor

wetland involvement can be expected where the project crosses Youngs Fork Muddy Creek. Other impacts will be primarily related to the actual construction of the proposed roadway. These include minor erosion and siltation, increased noise levels from construction machinery, and delay and inconvenience to motorists using the subject route.

VI. FUTURE ACTIVITIES

If the project is to be implemented at a future date, all feasible alternatives and their associated impacts will need to be evaluated in a planning/environmental document prior to that time, and a decision made as to the most appropriate improvement.

RBD/plr

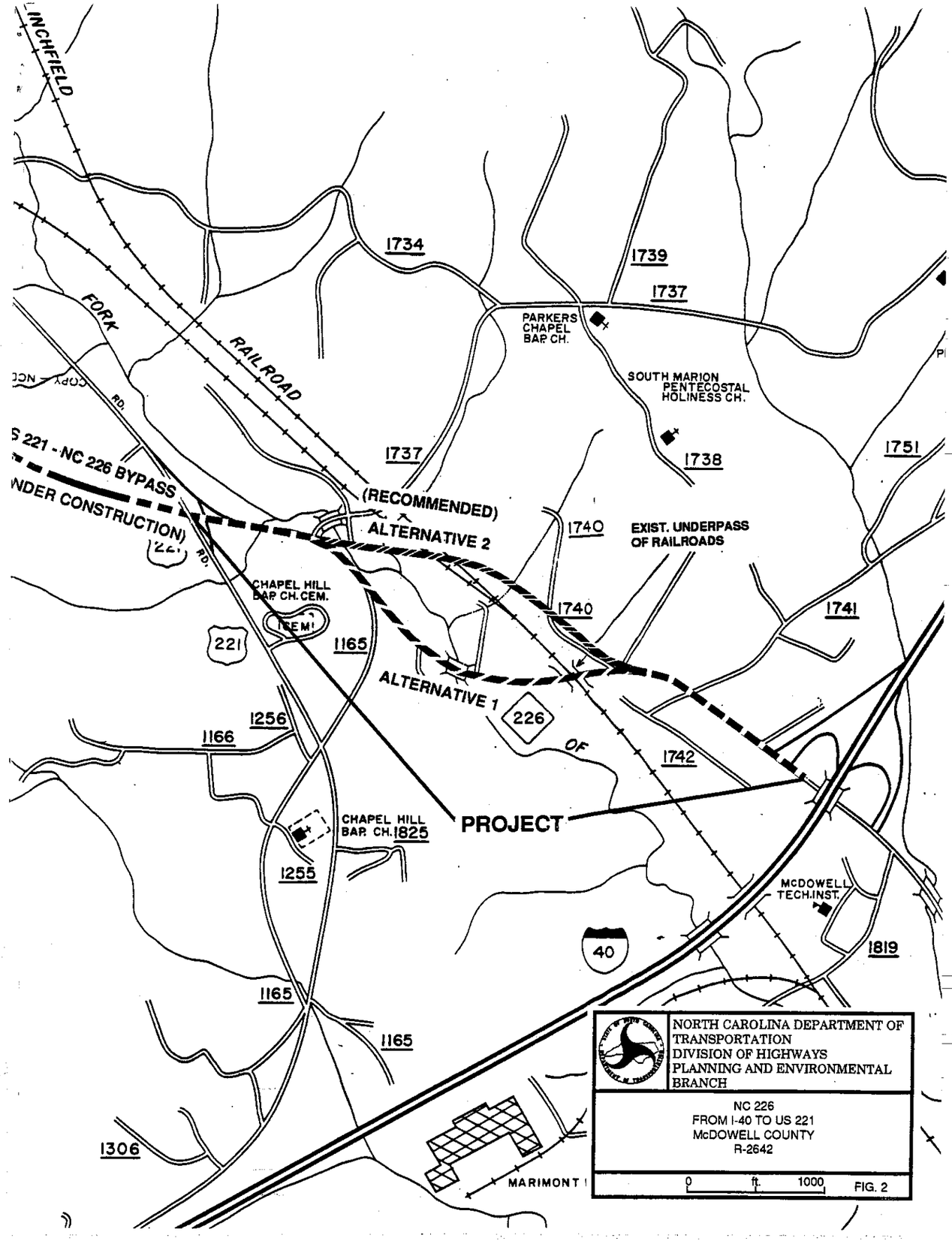


NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLANNING AND RESEARCH BRANCH

NC 226
FROM I-40 TO US 221
McDOWELL COUNTY
R-2642

0 mile 1/2

FIG. 1



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0 ft. 1000

FIG. 2